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ABSTRACT

These papers presented at a program by the Boston Library Consortium Cataloging Committee had three objectives: to present basic non-technical information on the implications for member libraries of the decision by the Library of Congress to close its catalog and to adopt AACR2: to emphasize the need to make decisions in the next two years on card catalog alternatives: and to provide all consortium staff with the opportunity to discuss the issues and options as they relate to serials, reader services, or other areas of a library system. The four papers reprinted here constituted the initial half of the program. The first covered the decision to freeze the Library of Congress catalog and adopt AACR2 and the effect on libraries using LC products. The second described alternative methods for maintaining the card catalog after Day 1. The third discussed the various automated alternatives to the card catalog, and the final paper was concerned with the management of the pre-AACR2 card catalog and how to link old and new catalogs. Small discussion groups focusing on the implications of AACR2 for various library functions concluded the program. (Author/RAA)

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BOSTON LIBRARY CONSORTIUM:

AN ASSOCIATION OF ACADEMIC AND RESEARCH LIBRARIES

Beyond Day 1: The Future of the Catalog

Papers presented at a

Cataloging Committee Program

June 7, 1978

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FOREWORD

The Boston Library Consortium is an association of academic and research libraries. Its full members are Boston College, Boston Public Library, Boston University, Brandeis University, Massachusetts Institute of Technology, Northeastern University, Tufts University, University of Massachusetts/Amherst, University of Massachusetts/Boston, and Wellesley College. Its affiliate members are the State Library of Massachusetts and the University of Massachusetts Medical School. Combined holdings total 13,126,315 volumes.

In existence since 1970, the Consortium was incorporated in the Commonwealth of Massachusetts in 1977. Five functional committees cover the areas of readers' services, selections and acquisitions, serials, cataloging, and programs.

Major activities of the Consortium include a collection analysis project, cooperative acquisitions, an internal delivery system, reciprocal borrowing for faculty and graduate students, staff development programs, and a union list of serials representing combined holdings of 114,497 current serials.

"Beyond Day 1: The Future of the Catalog" was arranged by the Consortium's Cataloging Committee and presented to staff members of the Consortium libraries on June 7, 1978 at Boston University. The program had three major objectives: 1) to present basic, non-technical information on the implications for Consortium libraries of the decisions of the Library of Congress to freeze its catalog and adopt AACR2; 2) to emphasize the need to make decisions in the next two years on alternatives to the card catalog; 3) to provide Consortium staff with the opportunity to discuss the issues and options as they relate to serials, readers' services, or other specific areas of a library system.

The four papers reprinted here constituted the initial half of the program. The first, by Catherine Tierney, covered the relationship between the Library of Congress' decision to freeze the card catalog and adopt AACR2 as well as the effects on libraries using LC products. Judith Blight next described alternative methods for maintaining the card catalog after Day 1: either retaining the present catalog or closing it and starting a new one. Susan Cote discussed the various automated alternatives to the card catalog. Lastly, Katherine Staack was concerned with the management of the pre-AACR2 card catalog and the means of linking the old and the new catalogs.

The concluding half of the program was devoted to small group discussions which focused on the implications of AACR2 for various library departments.

May, 1979

P eface

The program Beyond Day 1: The Future of the Catalog was presented by the Consortium Cataloging Committee to inform staff of Consortium libraries of the implications of the Library of Congress' decisions to freeze its catalog and adopt AACR II and desuperimposition. The program was intended primarily for staff not directly involved in cataloging. The information presented by the four speakers, all members of the Consortium Cataloging Committee, was, therefore, intentionally basic and non-technical.

The four papers are:

Introduction: LC and AACR II Background.....page 1
by Catherine Tierney
Boston University

The Card Catalog After Day 1.....page 12
by Judith Blight
Tufts University

Automated Alternatives to the Card Catalog.....page 29
by Susan Coté
Boston College

The Old Catalog After Day 1.....page 44
by Katherine Staack
Tufts University

Introduction: LC and AACR 2 Background

A Paper Presented at
Beyond Day 1: The Future of the Catalog

Boston Library Consortium
June 7, 1978

Catherine Tierney
Boston University

The Library of Congress has been warning the library community for a number of years that it has been having significant problems maintaining its vast catalogs and that it has been investigating reasonable solutions to those problems. The primary concerns were with the ever-expanding size and ever-declining physical condition of its public catalogs. Throughout the history of the Library, the size of its catalogs has been an issue of concern. In the LC annual report of 1916 we read that "The expansion of the public card catalog is a subject of concern requiring immediate attention." By 1925, when the public catalog was growing at the rate of 160,000 cards per year, the shortage of space necessitated the undesirable removal of readers' desks. Thus the story went for the next four decades, and the problem has refused to go away.

LC's problems with its catalogs are our problems, too. We all depend on LC for a large percent of our cataloging copy, be it from the National Union Catalog or from the distribution of MARC tapes. Libraries in various cooperative groups with which we share information, bibliographic or otherwise, also count on LC to lighten their bibliographic burdens. Virtually all of us rely on LC to get our work done. And just surely, LC's policies in making this information available affect us greatly. Our profound reliance on LC requires us to know what were LC's past policies,what are its current practices, and what will be its future direction. And so we meet, because we are concerned. But beyond concerned, we are quite puzzled because some of us, most of us probably, are not totally aware of just what it is that is happening, or, more appropriately, what is going to happen beginning on one mysterious day in 1980.

The official statement appeared in the LC Information Bulletin as recently as November 1977, and I quote: "The Library of Congress has decided to stop filing new entries in its massive card catalogs on Jan. 1, 1980, and to rely primarily on automated data to provide access to the collections. From that date forward the Library will possess two catalogs-the "frozen" manual one and a new multipart one that will include all records in the MARC data base and all records cataloged after Jan. 1, 1980, whether available on-line or temporarily in card format. At that time LC will abandon its policy of superimposition, will adopt the second edition of the Anglo-American Cataloging Rules (AACR2) and the 19th edition of Dewey, and make changes in the subject heading system."

By this time, we are all aware that LC's decisions are dramatic changes for the Library, and as a result, we will all be affected immeasurably. So we are calling ourselves to action to determine the optimum method of coping with the effects of LC's new policies. Our individual libraries' catalogs reflect a history of living with new rules and policies, either LC's or the local library's. And these catalogs have large problems not unlike those which unceasingly afflict LC. So perhaps investigating LC's studies will aid us in grasping why LC is compelled to make the changes and help us in drawing parallels through which we can approach resolving our similiar difficulties.

In 1972, LC's Processing Department presented a paper which included projections on the size and growth of its card catalogs. As of June 30, 1971, it was estimated that LC's Main Catalog alone contained almost 16 million cards, and that 782,000 cards would be added annually to that one catalog. That's over 16,000 catalog drawers in 1971, with over 800 drawers added every year. The 1975 expenditure for the maintenance of the card catalog was in excess of $600,000 per year. And by 1980 when the size of the Main Catalog will be over 25 million cards, the cost of maintaining that could reach 1 million dollars a year.

As for the physical condition of the catalog, it is obvious that the maintenance

of catalogs of this size is a very expensive enterprise, requiring increasingly large allocations of equipment, space,and staff. The larger the catalog, the higher is the unit cost of adding an entry to it. Searching becomes increasingly difficult for the staff and the public. And the larger the catalog, the less responsive it is to change, as the expense of making changes tends to inhibit the adoption of better cataloging rules for entry and heading, the revision of out-moded subject headings and the introduction of simplified rules.

The process of adding, withdrawing, revising and returning cards to the catalog is subject to human error. In the course of the 70-year development of the Library's catalogs, it has been impossible to prevent the sizeable accumulations of various deficiencies. Misfiled cards in the Main Catalog are estimated at 5 percent; with over twenty million cards, that catalog has approximately one million misfilings. Call numbers are incorrect, illegible or missing altogether; there are numerous discrepancies in entries. Many cross references are obsolete, in conflict with existing entries, or simply missing.

Another problem which continually confronts the Library is the increasing size of the catalog in regard to subject headings. For two obvious reasons, the subject catalog is in a state of constant change: First, new fields and topics and new relationships between topics are developing. For example, LC has established the new heading CITY PLANNING to replace the former heading and subdivision CITIES AND TOWNS dash PLANNING. A second change is because existing topics are being given new names. Just recently LC changed the former heading INSURANCE,SOCIAL to SOCIAL SECURITY. PROFESSIONAL LIABILITY became MALPRACTICE. Geographical headings go through similar changes. CEYLON to SRI LANKA; BRITISH HONDURAS to BELIZE, and so forth.

Such new terms are relatively easy to incorporate into the system; however, changes in headings in catalogs the size of LC's can only be accomodated at great expense. Many inconsistencies and anomalies have developed in the subject list as a result of trying to work around that system.

LC's complex filing rules add to the problems of working with the catalogs. As long ago as 1956, the Library's Processing Committee recommended the adoption of certain alternative rules to affect simplification and improved entry arrangement. At that time it was impossible to introduce the alternatives into the catalogs. A more thorough revision of the filing rules was completed in 1971; the Processing Department was convinced that the rules' adoption would greatly improve the efficiency of catalog maintenance and use. At the same time, there was no doubt that applying them in the catalogs would be an undertaking of great difficulty and significant expense. Hence the old rules remain.

The Processing Department is also concerned with the major cataloging rule changes whose application will have an immense effect on its already troubled catalogs. While the Processing department worries about the deteriorating condition of its catalogs, other offices at LC are examining the success of the concept which is now LC policy, shared cataloging.

Cataloging codes, rules for entry, and rules for description have evolved and changed over the years in response to professional concerns. The concept of shared cataloging has been around for years, and with the growth of shared cataloging it became clear that from institution to institution and country to country different cataloging codes were being utilized. On the international level, the concerns over choice and form of entry were great. Corporate body hierarchies were handled very differently from agency to agency which made the exchange of information even more difficult. In 1954 the Council of the International Federation of Library Associations (IFLA) set up an international working group to study the international coordination of cataloging rules; Unesco encouraged and assisted IFLA's work in this field. Two grants from the Council on Library Resources enabled IFLA to plan and hold an International Conference on Cataloging Principles in Paris, in October 1961. Delegations from fifty-three countries and twelve international organizations attended. Working papers and a draft statment of principles were circulated before the Conference, and the sessions of the Conference were devoted to discussion and amendment of the principles

The final statement of principles received the approval of a large majority of the participants.

The Statement of Principles emanating from the conference contained one principle that is of particular interest today. It established the concept of entry under the most common name of a person and, to some extent, the most direct name of a corporate body. This principle rests on the belief that simplification will provide the user with greater access to library collections. According to this principle, the entry for the author of Alice in Wonderland would be Lewis Carroll rather than Charles Lutwidge Dodgson which was the American entry under the earlier ALA rules. This simplification of the varied and complex rules for forms of name is considered one of the most significant achievements of the so-called Paris Principles.

The Anglo-American Cataloging Rules were one of the first sets of rules to appear following the publication of the Principles. The Anglo-American Code adhered to the principle just mentioned by preferring entry for a person under his or her most common name. Corporate bodies in most cases were to be entered directly as in these cases. Before AACR, LC and the libraries which used LC cataloging entered names according to the ALA rules of 1949; the Anglo-American rules were a departure from the ALA rules. These libraries' catalogs contained hundreds of entries under Horatius Quintus Flaccus rather than under Horace. Some of their corporate body headings were in the form of place and name, such as California University. The overwhelming question for these libraries was: How to integrate the new rules into their old catalogs? The Library of Congress, determining that it could not afford the cost of full integration, announced that it would not apply the new rules for headings in those cases where a name had already been established in its catalogs. As a corollary, those names which had not yet appeared in its catalogs would be established following the new Anglo-American rules.

Thus, items coming into LC even after 1967 with an entry required for the University of California were entered in the catalog under California University.

But, in 1968, when LC cataloged its first item from the recently established University of Malawi, the entry was under University of Malawi rather than under the retrospective form of Malawi University. The LC policy which maintained the old rules for already existing entries was named "superimposition."

Libraries which used the numerous LC products such as printed cards or the NUC had little choice but to follow LC's superimposition practice. As a matter of fact, their catalogs also had large files of California University and Clemens, Samuel Langhorne. Applying the full AACR in any good sized library would have been a big problem in 1967, whatever LC had decided to do. Five years after the adoption of superimposition, the LC Processing Department admitted that that policy had continually withheld from the Library and the users of its bibliographic services the benefits of greater accessibility inherent in the new rules.

There is little doubt that the American departure from the Paris Principles adversely affected the influence of the United States in cataloging circles abroad. Nevertheless, during the 1960's, American research libraries enjoyed rich communication and contact with their European counterparts. The "shared cataloging" made possible by the Higher Education Act of 1965, while impelled by the mounting costs in American research libraries, was realized only through the statesmanship of key LC staff members. It is ironic that the program which most Americans saw as the panacea for their cataloging arrearages actually laid the vital groundwork for what may be the end of American dominance in the field of bibliographic control. For, once LC had indicated its willingness to accept descriptive data for foreign publications from the national bibliographic offices of the countries producing those publications, and to accept that data without asking major alterations, the way was cleared for higher levels of cooperation. NPAC then went on to demonstrate the feasibility of one-time cataloging, at least with regard to description.

NPAC is the National Program for Acquisitions and Cataloging, set up in 1965; the program established relationships between LC and major foreign bibliographic capitals to channel cataloging copy to Washington, and from LC to the research libraries

of the country. The effects were dramatic: libraries which had had to perform original cataloging on 40-60 percent of their acquisitions were able to reduce the proportion to 20 percent.

It was only a short step beyond NPAC to obtain international agreement on standards for the order and punctuation of the bibliographic elements.

International cooperation in description has proved to be especially important because of the development of machine technology which has aided the growth of shared cataloging. It is possible for LC to share its machine readable tapes with the British Library and other national libraries. Since 1968 LC has been building a data base of machine readable records for some of its cataloging: The MARC, for machine readable cataloging, data base. At the beginning of the project the scope consisted of English language monographs on a limited basis. The coverage gradually expanded to French and German language materials, then to romance languages. MARC serials cataloging was inititated in 1974. The current scope of MARC includes serial and monographic materials in all Roman alphabet languages including Croatian, Malaysian and Vietnamese. Through the NPAC program, LC receives cataloging copy which it enters into its data base with possibly only minor modifications. The MARC records are available by subscription from LC. U. Mass. gets them, the BPL gets them, and the rest of us, through our memberships with OCLC have them available for access. By 1980, the MARC data base will be the foundation of LC's new on-line catalog. To aid the machines' understanding of the transmission of this data, standard order and punctuation have been prescribed by IFLA committees.

The purpose of my explanation of international cataloging developments is to emphasize that AACR2 is a significant change in the continually evolving profession of cataloging. We are now to catalog with the rest of the world in mind. LC certainly has international cooperation in its mind, and any of us who contribute to or use a machine readable data base had also better keep the world in mind. Indeed, AACR2 is coming into being because of the vast increase of cataloging coverage made possible by sharing data from country to country. The success of this cooperation rests on the

foundation of standards by which cataloging practice is structured.

Cataloging, as a term used by catalogers, encompasses the bibliographic description of an item as well as choice and form of entry. The International Standard Bibliographic Description, ISBD, is already in use. The American Library Association published ISBD for monographs as a revision of chapter 6 of the AACR in 1974. LC began cataloging with ISBD in September 1974, OCLC required it for contributed cataloging as of September 1975. This new form of description will be an integral part of AACR2 which will be published later this year. This system prescribes systematic punctuation and spacing between elements of description. The pattern certainly facilitates visual recognition of the parts of the record, thus helping to fulfill two purposes, 1.)making records from different sources interchangeable, and 2.) assisting in the interpretation of records across language barriers.

But more than description, what will affect us most, and the primary reason that we are here today, is that the rules for form of entry in AACR2 conflict in basic ways with the rules that most of us are currently using. The first edition of AACR was not without deficiencies. AACR2 aims to correct some of the deficiencies of the earlier edition. From what sketchy information is available now, the rules for form of entry in AACR2 prefer entry under the most common name of a person, the most direct name of many corporate bodies, with the vernacular preferred in all cases. The problems of extensive old-rule cataloging files which plagued LC in 1967 and compelled it to adopt superimposition are an intensified problem in 1978.

In conjunction with the international necessity for rule change, LC continually studied the mounting problems of its immense card files alluded to earlier: the rapidly increasing space requirements, the deteriorating cards, the innumerable misfilings, and the complexities of headings and cross references. LC also focused on its growing data base of machine readable records to determine if that file and its supporting systems could conceivably solve the major problems inherent in its card catalogs. It was pronounced that January 2, 1980, would be the beginning of a new era at LC. On this day, now referred to as Day One, LC will enter all cataloging in its

machine readable data base, will make changes in its subject heading system, and will cease filing into its card catalogs.

Such a freeze of its catalogs will enable LC to start following AACR2 most particularly for form of entry. LC readily admits that nothing short of opening a new catalog would have made the rules adoption possible for them. With the advent of AACR2 LC will terminate the folly of superimposition; this abandonment is termed "desuperimposition"; from Day One on the United Nations Educational Scientific and Cultural Organization will be entered into LC's new catalog under its more common name of Unesco. The University of Massachusetts will be found under "University" rather than under Massachusetts. And El Greco will be under Greco not Theotocupuli.

LC expects to take advantage of the possibilities which opening a new catalog will afford it. Standard computer filing will supplant the complex LC filing rules. A valiant attempt will be made to refurbish the subject heading system in time for Day One. As a matter of fact, LC is actively soliciting suggestions from librarians for headings which require updating so that these changes can be incorporated into the new system and be available for our use as close to Day One as possible. The difficulties that LC has been having with the size and physical condition of its card catalogs will not increase. LC is studying a variety of options available for the upkeep and ultimate treatment of its old card catalog. The options currently defined at LC are similar to the options that we will have and will hear about in the last presentation this afternoon.

So, in less than two years we will be receiving cataloging data, much of which will be in direct conflict with what we are using now. According to LC's rough estimates, 49 percent of the entries in its MARC data base will not be valid under AACR2. Since this data base is the foundation of its new on-line catalog, LC has stated that those MARC records will be changed to reflect the new form of names required by AACR2.

But the question now is how are we going to come to terms with LC's far reaching changes? Should we freeze our old catalogs and start anew as LC is going to do?

First of all, if we have any committment to our users' needs we will be unable to simply ignore the situation. And we shouldn't want to ignore AACR2; one of the reasons for its development was for the positive advantages it could bring to our patrons' use of the catalogs. Treated well, AACR2 should improve access to our collections.

On the simplest plane we have two major options: first, to cope within the context of our current catalogs; and two, to close our old catalogs which used the old rules for form of entry and to open new catalogs for materials cataloged using the new rules. Within each option exist various alternatives for local adoption. The speakers to follow will elaborate on those possibilities.

Certainly, the alternatives pursued by any given library will have to be based on local needs, resources and priorities. A number of questions must be addressed by each library here as well as by each library which uses LC bibliographic information. You might begin with a study of your existing catalogs. What is the condition of the cards? How much room for growth is there? Do sampling to estimate a filing error rate and an error rate for conflicting entries, missing cross references, and missing cards, to expand into new drawers? Once you have an idea of what you have on hand, you can investigate the numerous options available for maintaining your old catalog or starting a new one.

We don't have much time left if we expect to be prepared for the new cataloging which will start coming through LC early in 1980. Key decisions must be reached. The ramifications will touch every part of the library; readers' services will be conscious of user satisfaction with the catalog as the gateway to the collection. Cataloging personnel will face major issues in determining what options are feasible, given the size of the staff and the amount of work to be done. And the serials department will have a large stake in the decision because, as we will hear shortly, serial materials present knotty problems when you speak of starting a new catalog.

The Consortium Cataloging Committee has discussed over the last year implications of LC's decisions to freeze its catalogs and adopt AACR2. Because of the significant

impact of these decisions, the Committee recommends that local library task forces or committees be established with the charge to determine the optimum method for living with and taking advantage of the opportunities presented for Day One and beyond.

=END=

The professional literature was consulted extensively in the preparation of this paper. Some of the most beneficial articles were:

Elrod, J. McRee. "Is the Card Catalogue's Unquestioned Sway in North America Ending?" Journal of Academic Librarianship (March 1976.)

Gorman, Michael. "Changes in Cataloguing Codes: Rules for Entry and Heading" Library Trends (January 1977).

Hickey, Doralyn J. "The Search for Uniformity in Cataloging: Centralization and Standardization" Library Trends (January 1977).

Rather, John C. "The Future of Catalog Control in the Library of Congress." (Unpublished) 1974.

United States. Library of Congress. Processing Department. "The Library of Congress Card Catalog: an Analysis of Problems and Possible Solutions." (Unpublished) April 1972.

The Card Catalog After Day 1

A Paper Presented at
Beyond Day 1: The Future of the Catalog

Boston Library Consortium
June 7, 1978

Judith A. Blight
Tufts University Library

You are going to have many opportunities both later today and over the next year or so to hear about automated alternatives to the card catalog. More and more people in our field believe that library catalogs that are based on automated systems for the display of information are the form that will prevail in the future for all but the smallest libraries.

Despite this trend, though, I don't think it is old-fashioned to continue to think about the card catalog. Automated catalogs are certainly the catalogs of the future for larger libraries, but there is a difference of opinion on how far away that future is. Therefore some of us will want to think about carrying the card catalog past 1980.

However, the Library of Congress' big decisions that Catherine Tierney has just described for you do mean that our future card catalogs will not be simple extensions of the catalogs we have now. There will be changes and adjustments to make, each one an individual policy decision.

There are many options available to us, but there is one point about which there is really no choice.

That is that you must think about how to manage the catalog - if you are catalogers - and how to use the catalog - if you are doing other kinds of library work - well in advance of January 2, 1980.

Let me start by talking about Day 1 and what it will mean to you as you start work on the first day of the new year 1980.

Card catalogs are based on the principle of collocation. Perhaps it is largely catalogers who consciously think about collocation as an abstract principle but all library personnel and users rely on it every day.

The principle of collocation states that all works by a single author will be found in one place in the catalog; and that all editions of any work of an author will be found in one place.

Collocation of an author's works is the principle you are relying on each time you tell a patron to look up the book he or she wants under the author's name in the card catalog. Even if the author changed his or her name several times in the course of his or her writing life - even if the name is spelled one way on some editions of the work and another way on others - even if it is a foreign name that can be transliterated in several different ways - the name appears in one form only in your card catalog. Name cross-references lead your patron from other forms of the name to the form that the Library of Congress has established for that author.

When L. C. opens its new catalog in January 1980, all authors' names are going to be re-established following the new rules for form of main entry. We suppose that many straightforward personal names will be re-established in exactly the form that was used in the old catalog; cards for these authors will continue to file into your card catalog just as if all of this excitement about closing card catalogs had never taken place at all. However, a great many names - personal authors, corporate authors, and geographic headings - are going to be re-established in different forms after January 1980. If you simply file these cards into your card catalog, then - just like that! - you have lost your collocation in the card catalog.

Let me expand for a few minutes on the ramifications of the re-establishment of name headings by L. C. No one knows for sure how many name headings will be changed after 1980, but estimates have run very high. Some of the sources of changes are obvious. For example, main entry for personal authors will be established

under their most widely-used form of name, whether that is the pseudonym or the birth name. For example, future cataloging for "Samuel Clemens" will appear with the name heading "Mark Twain." Authors with non-Roman names may be re-established in forms that are transliterated differently from those with which we are familiar. Even perfectly simple personal names offer the possibility of changes in form of entry. Think about your own name for a moment. You can set it forth in several different ways, depending on the combination of full names and initials that you use. Each permutation would file a little bit differently.

In January 1980, you will start to receive in your library cards for works by authors who are already represented in your collection and hence in your card catalog. Many of these cards are going to bear name headings that are different from the headings in your catalog now. What are you going to do with them?

Libraries who have decided to remain with card-format catalogs after 1980 have two options open to them. One is to compensate for the loss of automatic collocation by introducing systems of linking and interfiling within their original card catalog. The second is to follow the example of the Library of Congress and to open a new catalog. I am going to talk about the second of these alternatives first.

How does opening a new card catalog help you to handle the loss of collocation that is going to follow from the end of desuperimposition and the use of AACR2 at the Library of Congress?

Most basically, opening a new card catalog helps you by "organizing" the problem that we all face. The new catalog doesn't in any sense solve the problems, but it allows you to create a structure for managing the many changes that must be dealt with.

Opening a new catalog guarantees that no matter how many name and subject headings are changed by L. C. after 1980, you can always be sure of one thing. All the old forms will appear in the old catalog and all the new forms will appear

in the new catalog. This fact, which may seem a little obvious right now, will be something your staff and your patrons can cling to when every other "fact" about the card catalog or catalogs is in flux.

There is still the problem of knowing which names are used in which of the two catalogs - but I will address that question a little further on.

Opening a new card catalog requires that the Library make many important decisions. If there is to be a new card catalog in your library, you will need to make many individual decisions about what is going to go into it. Depending on the internal organization of your individual library, these decisions may be made by the catalog department alone or by a larger group. One of the keys to the success of the new card catalog - which means your patron's ability to find material that they want in your library - is going to be communication of these decisions. No matter who decides on the content of the new card catalog, it is very important that everyone who uses that catalog on your library staff be fully informed about what the cataloging department is putting into the new card catalog.

When first I began to think about what opening a new card catalog would involve, it seemed that the division of material between the old and new card catalog would be very simple. All material cataloged by L. C. after January 1980 would go into the new card catalog. Everything already cataloged by L. C. (or by the local library, of course) would be found in the old card catalog and would remain there. However, considerations of service make the division of material between the two card catalogs likely to be more complicated than the simple pre- and post-1980 division.

It is obvious that all new MARC cataloging from the Library of Congress will be filed into the new card catalog. Beyond this point, we have many decisions to make, choices that are genuinely our local options.

One of the major decisions to be made concerns MARC cataloging of recent years. In addition to following the new rules of entry on all future cataloging, L. C. is going to go backwards into the MARC tapes - perhaps all the way back to the 1960's - to make changes in form of entry to conform to AACR2 on these earlier portions of its machine-readable cataloging output. When L. C. updates its cataloging for the period 1968-1979, each library will have to decide whether it too wants to update the cataloging for this material. It will be possible to order cards for a lot of English and European language material published before 1980 and add them to your post-1980 catalog. Instead of having a new catalog for material published after 1980 only, you will be able to move a lot of recent material into the new catalog.

This recataloging of recent publications to conform with the new rules presents both an opportunity and a problem.

If you recatalog this recent material, your new catalog will grow much faster than the ordinary rate of new accessions would cause it to grow. The faster it grows, the faster your patrons will become used to using it. As they find more and more of the materials they are searching for in it, it will be more rewarding to use. This pattern should have a good effect on library public relations and on the real rates of successful library use for the patron.

On the other hand, if you add this pre-1980 material to the new card catalog, you lose the ability to explain to patrons which card catalog to use for what years of publication in any simple and straightforward way. It's relatively easy to say "This catalog is only for books cataloged after 1980." When you begin to multiply exceptions, the explanations become more complicated.

We don't know at this point which situation will be better for the patron in the long run: a simply-defined new catalog that contains only a small proportion of his needs - or a more complicated new catalog that containes a larger proportion

of his needs. As you will soon hear, it is probably not possible to make the new card catalog very simple in any case. What is important here - and I will be saying this several times this afternoon - is that each time a decision is made about what kinds of material to put in the new catalog or keep in the old catalog - everyone in the Library must be fully informed about what the decsion is, what it means, and the rationale behind it. This is the only way we can prevent the library staffs from becoming as confused as the public and the only way we can help the patron to survive this change without losing faith in the library.

Let me go on to discuss a few more of the questions concerning what to include in the new card catalog. Each library will want to think about its policy concerning new editions of works that are already in the library's collections. Under the principle of collocation, your users could see all editions of one work by an author in a single file. You may want to continue to make this possible. If so, you will make a policy of moving the earlier editions of the work from the old catalog to the new catalog. In some cases, you will have to recatalog the older editions - if the author's name has been re-established in a different form or if you have decided to have machine-readable format records only in the new catalog. You may feel the need to set up some kind of work-load criterion for handling each case - moving editions only if the recataloging load is not more than a certain amount.

If you decide to move editions under some circumstances, you will probably also consider moving some entire authors from the old card catalog to the new one. To keep control of this situation, you will want to draw up policies for deciding the circumstances under which all of an author's works will be moved into the new card catalog as well as the circumstances in which you will maintain a divided file.

Your alternative to recataloging and moving cards, either for one work or for all works of an author, is to use an information card of some kind. Perhaps

with each new edition of a work that was represented in your collection before 1980, you will file a card in the new portion of the catalog that says, "For editions of this work published before 1980, consult the old card catalog."

This solution cancels the need for a great deal of recataloging and refiling. You can design the information card format that seems appropriate to you and order an advance supply. Its drawback is that it relies on the expectation that your patrons will actually read and act on information cards. Some studies of catalog use indicate that many patrons use information cards hardly at all. If this seems to be the case in your library, you may want to minimize your reliance on this form of linking related files in the card catalogs.

I think you can see that your library's philosophy of library service comes into play in this decision and in many other decisions relating to the card catalog. How much do you expect the user to do for him or herself? How much should the library do <u>for</u> the user? And that last question has a pragmatic side: how much can your library afford to do for the user?

The addition of translations of works that your library already owns in the original calls for a decision parallel to the decision you will have to make about new editions. The Library may also want to be alert for the need to link in some way formal and informal sets. For example, multi-volume biographies are often published as monographs, but there is an important relationship among them. You may or may not be willing to have half of George Washington's life appear in the old card catalog and half of it in the new. Each library will want to consider whether it wants to try to identify sets like this and either physically bring the cards into one file or link them in some other way.

Serials are another area where the potential for confusion and the number of decisions to be made are both very great. I have just outlined a number of cases when the library may want to link together certain monographs for the convenience

of the user. All serials have the potential to cause analogous problems for the library that opens a new card catalog.

For those of you who do not have much experience with serials, I will just mention a few kinds of strange behavior that are typical of serials. Unlike a monograph that is (usually) published once and cataloged once, a serial is published over time. It acquires a history and the opportunity to go through many changes. A serial may change its title or its issuing body; when this happens, you have two titles - an old, closed title and a new, open title - where you once had only one. Serials come to an end and then start up again. Under current serials cataloging practice, this, too, often means that you have two titles where you once only had one. Another typical behavior is for periodicals to split into parts. When this happens, you have 3 titles where you once had one: the Journal of X, now closed; the Journal of X part 1 and the Journal of X part 2. Mergers are just as likely as splits; and again you have 3 where you once had 1: the Journal of P and the Journal of Q, now both closed and replaced by the Journal of P and Q. Any serials person could go on multiplying examples like this for hours! When these changes take place, catalogers make linking notes that attempt to explain to the patron what has happened to the serial. It is already fairly challenging for an ordinary library user to follow the history of any complex serial title when it is all contained in one card catalog.

What happens now if you open a new card catalog? The most basic division between the old and new card catalog is going to be by date. Though I have mentioned occasions when you may move pre-1980 material into the new card catalog, date of publication - whether the item was published before or after January 1, 1980 - is going to be the underlying dividing line between the catalogs. For monographs, this is a fairly clear-cut matter, and most patrons associate the date of publication with the monograph.

For serials, however, there are two dates - one that is important to the cataloger and one that is important to the patron. The cataloger cares about the date that the serial began publication. Catalogers will think in terms of putting serials that began before 1980 in the old card catalog, and those that began after 1980 in the new catalog. The only date that library users associate with serials, however, is the date of the issue or volume that they want! The patron may expect, for example, to find the call number for the 1981 UNESCO Yearbook by looking in the new card catalog. He or she has never needed to know when the Yearbook began publication. Hence, library staffs are going to have to think very carefully about how to explain their arrangements for serials in the old and new card catalogs.

Monographic series that receive series added entries will be divided between the old and new catalogs. The user who begins his search in the old catalog may be led to believe that you have no volumes in the series after 1979. Of course, if he or she begins the search in the new catalog, the assumption may be that you own no volumes before 1980. To prevent this misleading situation, the Library may want to link the old and new catalogs for series.

Also potentially confusing will be changes of titles for serials. The linking notes on the catalog cards will refer the patron to the new title of the serial - but will the patron know whether to look in the new catalog or in the old one? Does your library want to devise a way of providing this information for each change of title that is cataloged?

Some suggestions have been made for attempting large-scale solutions to these individual problems of serials. One option is to move all open serials titles to the new portion of the card catalog. This is a very large undertaking, because many serials are issued under corporate names, which are more likely than personal names to have been changed by AACR2 and desuperimposition. Therefore,

many of the serials that you would want to move will have to be recataloged first. You will have to decide what priority you can give to this recataloging project. Another option is to move all serials to the new catalog. This option is more helpful to the patron who frequently doesn't know - has no reason to know - if the periodical for which he wants a 1957 issue is still being published or not. All serials live and dead will be in one card catalog. But just imagine the amount of recataloging that would entail. A third option is to pull all serials out of the catalog and create a different and independent kind of public record for serials. This sounds like a feasible alternative -but I'm not sure. And should the patron have to look in three places to find out if what he or she wants is available?

Perhaps we should pause in this recital of problem areas to remember something important.

There is not a right and a wrong way of answering these question. In each case, there will be advantages and disadvantages to each alternative. We will adjust to the disadvantages and take our consolation from the advantages. One of the big challenges, though, will be to adjust the library's routines to insure that the new policies are followed consistently until everyone is used to them and to make sure that the information about what these policies are and what they mean is conveyed to everyone who needs to know. Each decision affects more than the recataloging work load that the library will have to plan for. It also affects the number of details about the new catalog that the entire library staff will have to learn and be able to convey to users of the library. For example, Acquisitions and Interlibrary loan staffs will need to be able to adjust their own catalog search strategy. Reference and Catalog Information staff will have to plan programs to explain the new catalog to users of the library. Clear information about what is in each segment of the catalog will help to keep us all sane during the

first few years of the 1980's.

OK. Let's take a deep breath and go on. You may have noticed that I haven't said anything about how users of one card catalog are going to know where to look in the other catalog. It's easy to remind patrons to look in both catalogs to be sure of finding what they want, but they are going to have to know what to look under. Whenever L. C. re-establishes an author's name in a form different from the form that was used before 1980, the Library will have to enable the user to discover both forms of name. In other words, the next challenge the library will face is how to link the names that are different in the old and new card catalogs.

The Library of Congress has decided not to link their old and new catalogs in any way. But most of us, I think, would have a hard time justifying that policy to our own users. They will expect each catalog to tell them what form of name they must use in the other catalog in order to find more works by the same author. These links will be in addition to the ordinary name cross-references that they find within each catalog. Since L. C. is not going to make links for their own use, it's very unlikely that they will provide them to us. Therefore, either individual libraries or cooperative networks will have to research all the links that will be needed.

The ideal catalogs will have name links in both directions. In the old catalog, for example, the user would find an information card on "Samuel Clemens" that says "works by this author cataloged after January 1, 1980 are entered under the name "Mark Twain" in the new portion of the card catalog." And in the new catalog, the user would find a reference under "Mark Twain" referring him to "Samuel Clemens" in the old catalog.

Creating links in both directions is clearly twice as much physical work as linking in only one direction. Some libraries will feel they must choose to link

in one direction only - which direction should that be? If you provide links in the old catalog to the new catalog, patrons will be guided to new and unfamiliar forms of name in the early days of the two-catalog situation. As years go on, it may begin to seem desirable to link from new to old; the older forms of name will be the unfamiliar ones to new library users.

Subject headings are going to require links as well. L. C. expects to modernize subject headings at an ever-increasing rate after the automated catalog is fully operational. The ability to do this is one of the big advantages that their automated catalog provides. Here too the ideal catalog would link old subject headings to new ones and new subject headings to old between the catalogs. Users will expect this if your library already makes many subject cross-references in the catalog. On the other hand, most studies of catalog use show that many catalog users do not pay attention to subject cross-references when they <u>are</u> supplied. This factor too will enter into the decision about links. Even if library users don't use links extensively, reference librarians do. Each library will have to decide whether its reference staff will be able to get this information from the card catalogs or from printed sources like the published subject heading lists. This will become difficult if L. C. does not publish another cumulated subject heading list for a long time - or ever.

Now, I don't want our natural preoccupation with the intellectual content of the new catalog to prevent us from spending some time thinking about physical questions such as - where to put it! So let's spend a few minutes thinking about the new card catalog as a physical entity. It won't take up much room at first, but it will grow. Perhaps your old card catalog can be shifted to provide room for it in your present catalog cases. You will need to plan for the time to carry out the shifting and relabelling. Depending on the rate at which each library's catalog grows, you will also want to plan the point at which it will need new

catalog cabinets. It is not too early to start thinking about where the new catalog should go. The public service staff of each library may have very strong feelings about the best physical lay-out for the public catalog.

The new catalog will be physically inconvenient to use at first. Users of card catalogs today are spread out over a relatively large distance: "B" may be yard away from "M" in a large card catalog. Users of the new catalog will be in each other's way all the time. It is not too soon to apply our imaginations to the project of devising ways to minimize this inconvenience.

By now, you are perhaps thinking: do I have to go through all this? Everything I have said so far is directed at opening a new card catalog and living with two catalogs where you used to have one. The assumptions in the literature are that you must close your catalog. Now I want to consider how you might proceed if you wanted to maintain one card catalog all along. What are the opportunities and problems there?

The problems of the single card catalog in the 1980's are in many ways the same as those of the two-catalog situation. There will still be many names and subject heading links to be made. There is no way that the problem of linking can be avoided, now that L. C. is committed to desuperimposition.

There are some advantages in keeping the single catalog. For one thing, a single integrated card catalog will save every catalog user a large number of unnecessary double searches. Remember that although many names will be changed when they are re-established by L. C. many other names will not be. This means that in many cases, you and your users will have to make two searches - one in each catalog - for information that might, without any confusion, have been kept in a single file.

The time-consuming aspect of this double searching is going to affect the efficiency of many library operations. Both users and library staff will be very

frustrated by this double searching.

The Library that keeps its old catalog after 1980 has two options for creating the links that desuperimposition calls for. It can interfile some changed headings to eliminate double searching. Just imagine a file of subject added-entries alphabetized by author - but some cards are headed "European War 1914-1918" and some "World War I." This will look very messy and confusing but all the information the user needs to find all your books on that topic will be right there. Some name and subject changes will not be very extreme and might be interfiled without causing great confusion. Interfiling "Homer" and "Homerus" will probably not create any problems. Some users will be confused by interfiling, of course, but it might be that that user is more likely to find the book he is looking for anyway, than is the student who simply doesn't read cross-references and information cards.

Cross-references and information cards are the Library's other option in a single catalog situation. If you can sensitize your users to the need to use these resources, you can create a usable catalog without total collocation. Probably a library that opts for one catalog would use cross-references for some changes and would interfile others. This provides a great deal of flexibility.

So what is wrong with this option of keeping a single card catalog after 1980? It sounds messy, to be sure, but also very reassuring - less trouble than opening a new card catalog as well. It's a very seductive idea.

There are very real drawbacks to following this option. First, it is not clear that this choice presents a truly substantial saving of time and effort over opening a new catalog. The number of changes in name and subject headings ahead of us is massive in any case. If your library position does not involve actually managing the card catalog, it may be hard for you to imagine exactly how big a chore making name changes, cross-references and links will be. If you

are a cataloger, you probably have a better idea. The project is a big one whether you file the results into one card catalog or two. Interfiling also is time-consuming and expensive. Choosing this alternative is not likely to reduce the work load greatly over-all. Choosing to stay with one catalog will not save a lot of money, perhaps not any money at all. Library catalogs are going to be more expensive after 1980, no matter how you organize them. There will continue to be only one way to save a lot of money on the catalog, and that will be to maintain it at a very low level of quality.

More importantly, this solution is a kind of open-ended expedient. There is no end in sight to the number of compromises and half-solutions that will fill your catalog if you try to maintain a single catalog. Its contents may follow 3 or more different codes for form of entry. Your catalog will always be becoming messier, and more confusing, never less: there will be no possibility of cleaning it up. If you open a new catalog and monitor its management very carefully, you will have one relatively clean file to build on in the future, one in which every entry is based on AACR2 and in which most entries have a machine-readable record to back them up.

The future should be of equal concern to us at the present, where the catalog is concerned. Automated catalogs lie ahead for many of us. We have the Library of Congress as a living example of the problems created by avoiding adjusment to new cataloging requirements. If L. C. had not adopted superimposition rather than face the recataloging challenge of AACR1, the nature and scope of the problem we all face today would have been more modest. The fact that our national library of record will enter the future with two unlinked public catalogs is a monument to the cost of short-term compromises. Therefore, if you decide to accomodate the challenge of desuperimposition and AACR2 within a single card catalog you must be very sure that you are not closing the door on the future development of your

catalog.

Finally, I want to make a few points about the choice between continuing to use a card catalog (one, two, or any number) and choosing an alternative catalog based on automated technology.

There are some bad reasons for electing to stay with the card catalog, and you will by now have an idea what they are. They rest on a misunderstanding of what is going to happen in 1980.

First, you should not choose to keep your card catalog or catalogs in order to avoid the dislocation and confusion that L. C.'s changeover is going to cause. It is clear that you are going to have dislocation and confusion in any case.

Second, you should not choose the card catalog in order to save money - not until you have done cost studies on closing your card catalog and opening the new one. Library catalogs are going to be more expensive after 1980, no matter what. Although you can avoid a major capital expenditure on computer and microform equipment by holding off on automation, you will have to spend more money on catalog maintenance in order to continue to achieve bibliographic control of your collections and to give public service.

Third, you need not choose to stay with the card catalog in order to avoid your patrons' resistance to the new technology. Sadly enough, most of our users aren't all that fond of the card catalog. The word from the University of Toronto, where so much work has been done with automated catalogs, is that library users learn to like them very much and very soon. You will hear more about this later today, I hope.

There are, however, reasons for continuing in a card format catalog. It is not necessarily an unprogressive choice.

One reason is to gain further time for long-range development of your library's catalog development strategy. This includes time to do cost studies,

time to study local requirements and user needs, and time to work out the considerations involved in getting support from your institution for a major investment of funds in the library. The card catalog can continue to be a useful and high-quality tool to use while you are planning for a more automated future, as long as this future is not postponed indefinitely.

Furthermore, the rate at which all computer-based technology has developed and continues to develop might make a short postponement defensible. The options for automating the catalog in 1982 may be more interesting and varied than they will be in 1980. Cost patterns change as equipment that is an expensive specialty item in the beginning becomes more commonplace and less expensive later on. The possibility should be closely watched.

I think the most important point is that the choice you make for 1980 should maximize your future options as well as enabling you to provide library service in the present. No library wants to find itself in the position of the Library of Congress with no choice but to start over from scratch. To guarantee yourselves a full range of choices in the future, you need to think carefully about the card catalog now.

Automated Alternatives to the Card Catalog

A Paper Presented at
Beyond Day 1: The Future of the Catalog

Boston Library Consortium
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Susan Coté
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Now that the previous speakers have persuaded you that the problems are very real and very imminent and that the card catalog format as we now know it may well be losing its viability, you are, I'm sure, eager to hear all about those celebrated automated alternatives to the card catalog.

But I am going to keep you in suspense just a moment longer because in addition to the factors detailed by the previous speakers which are mandating our various examinations of our present catalog systems, there are numerous other considerations which alone would probably allow most of us to put off making any major decisions for a while longer, but which when coupled with AACR2 and L.C.'s decision to automate give the whole issue an even more awesome dimension.

And so before going into the details regarding the automated alternatives to the card catalog, I would like to review very superficially a few of these considerations. Some of the more major problems encountered with the card catalog are:

1. Its size - the larger the file the more costly it is to maintain.
2. its deteriorating editorial condition due to the changes in descriptive cataloging, subject headings, etc., which make much of what is in the card catalog obsolete.
3. the physical condition of both cabinets and cards - they show very visibly the effects of wear and hard use and are expensive to replace.
4. its vulnerability to mutilation, damage, or loss of cards.
5. staff considerations - searching, filing, and revision are simply not attractive tasks
6. space limitations - some libraries are already having trouble physically

housing the catalogs - in many instances there simply isn't room for more catalog cabinets.

7. the catalog is in one place only

The card catalog's primary advantage is that its physical form is familiar to library patrons and staff and so, obviously, no training in the operation of equipment is necessary. This form of catalog is current relative to the staff's processing speed and is updated by accretion - i.e. by filing new and revised entries, pulling withdrawals, etc.

Major cost factors connected with the card catalog are:

1. equipment and facilities: storage cabinets, storage space.
2. materials: card stock.
3. labor: maintenance of card catalog, typing, sorting and filing, creation and maintenance of the authority file.
4. and of course the above costs are multiplied in decentralized systems with many catalogs.

These factors could certainly bear amplifications and others could easily be found to introduce - but this isn't the forum. I've raised them only as a reminder that there are many issues that have to be looked at when making the decisions that we are discussing today.

So now on to automation and the book catalog, the COM catalog and the on-line catalog - in that order, but with COM catalogs getting most of the attention.

Book catalogs can be most simply defined as hard copy printed book catalogs that are computer printed on a line printer and reproduced, or photocomposed and reproduced. I should emphasize right at this point that my references to book catalogs will be only to those used for current catalogs, not those used for freezing and publishing retrospective catalogs. Those will be referred to by the next speaker.

Although this physical form of the catalog is familiar to only some library patrons and staff, the form of a book is familiar to all and requires no training in the operation of equipment. Because of the relatively small storage space occupied by

a book catalog, it may be considered flexible for placement purposes and so this form has been found particularly useful by libraries with decentralized systems or multiple service points. A large section of the alphabet may be contained in one volume of the catalog; therefore, multiple copies must be made available in order to accomodate many users simultaneously. Book form catalogs are out of date as soon as printed and must be updated by current supplements, cumulations, and/or periodic total revisions. In between the supplements and cumulations, there may also be a need for an interim record of newly processed titles in some form.

In 1975 a study was done that indicated that the majority of intermediate size libraries with computer-generated printed book catalogs were planning to go to COM catalogs within three years. Reasons cited were cost and time - in that order. The recumulations and cumulative supplements rise in cost quickly as the number of titles grows because the same titles are continually reprinted. The more frequent the cumulative supplement interval and the recumulation schedules, the greater the cost. As the catalog grows in size, the time lag between the cut-off date for data entry and final production of the book catalogs generally increases.

According to two authorities in the field, the majority of book catalogs are found in libraries with collections of less than 1,000,000 titles and in public libraries in which collections are periodically weeded. At least one major research library, however, the New York Public Library, has been dependent on a book catalog for its record of acquisitions since 1972.

As with card catalogs, durability is a very important factor here too. The durability of the paper stock and binding materials may not be a crucial factor if the book catalog is totally revised frequently. Volumes may be stolen, pages ripped or torn out, and the binding damaged. In addition, book pages may be considered defaced if changes such as corrections, deletions, and additions are made by hand. Searching ease should always be considered when evaluating a particular format. Various access points may be available in the book catalog - however, the logistics of using more than one access point at a time presents difficulties in maneuvering book volumes.

Time studies done on the manual searching of catalogs have shown that slightly more time is spent in searching the same items in a book catalog than in a card catalog.

Book catalogs are still to be found, but they are fast becoming obsolete because of the previously mentioned inherent delays in production and the costs of updating them.

Although obviously not the wave of the future nor even of the present, in the late '60's and early '70's numerous very sophisticated book catalogs were produced - noticeably at Stanford, Santa Cruz, Los Angeles County Public Library, and the N.Y.P.L. All of them, however, have or are in the process of converting to COM or on-line catalogs. The techniques and studies employed in the development and production of these various book catalogs have never-the-less contributed significantly to the advances in automated catalogs that <u>are</u> the wave of the future and they should be acknowledged as such.

As I stressed earlier, the negative aspects of book catalogs pertain primarily to those book catalogs used as current catalogs not those used for retrospective purposes such as the Boston Public Library's book catalog of its General Library's collection prior to January 1975.

Today when most people think of of automated catalogs they think of COM catalogs (at least when considering practical applications - I think that we all consider on-line catalogs pretty regularly, but for now only wishfully and very futuristically). Although I will address the issue of on-line catalogs a little later, my emphasis is going to be on COM Catalogs - one, because there is an abundance of information on the topic and two, because if the previous speakers have convinced you that continuing with the card format will not be feasible, the most viable alternative at least in the short run will probably be the COM catalog. These catalogs are, to put it very simplistically, roll film or fiche catalogs that have been computer produced via computer output microfilm. These do <u>not</u> include microimage catalogs that are produced by photographically filming the card catalog.

In 1975 it was estimated that only 10 public, academic and special libraries had COM catalogs. Approximately a year ago it was estimated that the figure is at least 60,

with perhaps another 100 or 150 libraries either embarking on, testing, or actively considering a COM catalog program for the near future. Among those with COM systems are: The Council of Research and Academic Libraries (a library consortium of 8 research and academic libraries in the South Texas area), Los Angeles County Public Library, Cambridge University, Yale University, Tulane University, Baltimore County Public Library, Georgia Institute of Technology, University of British Columbia, University of Toronto, The British Library, the entire public and academic library system of Hawaii, and of course, locally we now have B.P.L.'s General Library catalog on COM.

Georgia Tech. converted the bulk of its card catalog to fiche back in 1971. A bi-monthly supplement to the catalog is produced by a service bureau. Because the fiche catalog is so compact, Georgia Tech has initiated a unique library circulation system called LENDS, which brings the library directly to the faculty members by supplying each department with the basic catalog and COM supplements plus a microfiche reader. Faculty members can thus telephone requests to the circulation desk for books or to the information exchange for copies of articles and receive the material the same day. In a study done a little over a year ago, the director estimated that over one third of the faculty book loans and almost half of the faculty copying requests are handled through the service.

Many, if not all, of the disadvantages of the card format that I referred to earlier can be translated into the advantages of COM-produced catalogs. Some of the more distinctive features of COM catalogs are:

1. Ease of maintenance. Bibliographic information on a catalog card may occasionally need to be changed. Manually altering or updating catalog cards to reflect these changes is a time-consuming project. Because of the constraints of time and personnel, often these changes can't be incorporated. COM catalogs are produced from digital, magnetically stored files which are much more easily maintained. The addition, deletion, or revision of an entry in the central data base

revises the entry wherever it appears. Subsequent COM catalogs are produced with the correct entry.

2. Distributed access. COM-produced catalogs can be quickly and cheaply reproduced. It can therefore be practical to have copies of the complete catalog available throughout a library as throughout a campus.

3. Enhanced browsing. Multiple entries per COM catalog frame allow faster scanning or searching than does a card catalog (or for that matter a computer terminal display). In addition, the misfiling of entries is virtually eliminated. AND - with the proper placement and quantity of COM catalogs, congestion and queuing problems may be minimized.

4. Flexibility. Once a machine-readable data base has been constructed, additional products can be generated and entries can be transferred, shared, and duplicated.

5. Upgraded quality of the catalog. Standardized production and maintenance procedures for the catalog can be enforced because many of these are under machine control. One addition, revision, or deletion transaction for a data base entry generates the desired action for all related catalog entries.

6. Access by physically handicapped individuals. These individuals are often unable to use card catalogs without assistance. COM catalogs and readers are easily accessible to these users.

Once a library has decided to establish a COM catalog there are still a number of decisions that need to be made: fiche or film; cassettes or open reels, positive or negative images; reduction ratio; format (arrangement of the images on the film or fiche); how will the updating be done and how frequently, and so on. Each library contemplating the feasibility of switching to COM will have to conduct its own study in order

to determine what is best for it.

User orientation is, of course, a major factor and while this form of the catalog is familiar to relatively few library patrons and staff, many are acquainted with books and serials in microform. There still may be, however, a need to train patrons and staff to use the equipment. Such training, depending on the equipment involved, may require learning to insert reel, cartridge or cassette devices and learning to avoid damaging the equipment - in addition to locating and focusing the desired image. Self-contained microform systems minimize the amount of equipment manipulation required by the user. In an academic setting with a constant turnover of students, there may be a continuous need to train users, as well as retrain the infrequent users. In addition, user resistance (and that includes to a very high degree, library staff resistance) to microforms is strong, and quite probably often stronger than is reported in much of the literature or by groups with a vested interest in microform products.

While most COM catalogs produced for public use are in 16mm format, academic and special libraries seem more willing to try microfiche. There are several reasons for this: fiche readers are a good deal less expensive than are the motorized film readers and the user tends to be more able to cope with the not-too-demanding task of putting the fiche into the reader. Also, microfiche lends itself to supplementation much more readily than does film. In fact, one of the main problems with using film is the fact that in order to supplement the catalog and keep it in the same place as the cumulation, the entire file must be recreated. This costs much more than simply producing one or more fiche which can be tucked into the empty file slots behind each fiche cumulation. (Of course it would be possible to have fiche supplements to the film cumulations but this would necessitate having two formats and two readers). Furthermore, with film the temptation to cut costs by having infrequent or nonexistent supplements is far more appealing than the thought of trying to splice 10 feet of film onto the end of a 400-foot reel.

It's not uncommon, however, to find both formats in libraries that have switched to COM. For example, at the University of Toronto, film readers are used in the usual

card catalog location while fiche readers allow catalog access in the stacks. Having brought up the University of Toronto, it might be worthwhile citing them as a "case study" and spending a little time detailing what has happened there. Any academic library making the transition to COM in the next few years will probably look very closely at their experience and hopefully be able to profit from their various successes with the program as well as from their various mistakes.

The University of Toronto's COM catalog was established in July 1976, one year after the reader services personnel had learned of the impending closing of the card catalog. This had come to pass because in June 1975 the University administration had notified the library that there would be a 5% cut in operating funds for the following year. The library then decided that the time had come to make a choice between their card catalog and their data base - which they had been building for several years. Although I don't have the time to go into their planning and preparation activities, I do want to say that from all that I have read and heard they conducted an extremely thorough and sophisticated study and analysis of the problem with remarkable and envialble teamwork among the various sub-committees one of their outstanding results.

During that year an experiment with an on-line shelf list, as well as direct user surveys, indicated that nearly 70% of all catalog searches were for specific items and that a full bibliographic display was not necessary for most users(i.e., author, title, call number and location were generally all that were needed). The surveys also indicated that questions of locations for materials, filing rules, and a confusing combination of University of Toronto and Library of Congress subject headings had been causing the most frustration for users of the catalog. Although users did indicate in the surveys that a microfilm catalog was probably the least desirable alternative to the card catalog, an on-line catalog being their first choice, the reader services and administrative personnel finally selected the COM catalog as the most workable short-term solution on the basis of being able to replace the catalog within severe budgetary constraints and at the same time being able to improve services by offering greater speed of access and more access points.

At that point a comprehensive public relations and training program was organized by non-administrative personnel. Various media were used, and instructional meetings conducted, to assure the staff regarding the impact of technology on their jobs and to establish confidence in the new system among staff as well as students and faculty. There were two special mailings to all teaching staff, a succession of articles and notices in the University's weekly bulletin, and even a few paid ads in the student newspaper. Supplementary printed materials were available during the program and continue to be available. An audio-visual display near the main card catalog in the Robarts Library (which is the main library) offers brief but detailed instructions on how to use the COM catalogs and places strong emphasis on their advantages and additional listening stations are also located around the campus. Also - there is a compact instructional flip chart designed to stand on the table beside the readers. I have an example of this particular instructional tool and the other printed materials which I just waved at you, thanks to one of our reference librarians at B.C. who recently visited Toronto specifically to view their COM setup first hand and who brought back a wealth of information and, even more important, a superabundance of enthusiasm for the system itself and the way it works. I was particularly pleased by this reaction because we all know that the acceptance and cooperation of reader services is vital to the success of a venture such as this one.

The U. of T. COM catalog contains about 1.3 million records with approximately 5.4 million access points in four files: a shelf-list that is the only file to contain full bibliographic information, and the author, subject and title files. The initial letters in the names of these files just happened to form the acronym FAST which they took as a positive omen and which was eventually used as an acrostic in some of their publicity.

In deciding the arrangement and spacing of the data displayed in each record, there were two schools of thought - the first in favor of following the forms people were most accustomed to and therefore more likely to accept with ease, the other was in favor of devising new forms which would make full use of the flexibility and

freedom offered by the computer. The latter view won out in the end after many sample printouts had been studied and thus none of the COM records look very much like the usual face of a catalog card. For example, the main entry wherever it appears in the record, stands out in caps. In the three indexes (author, title, subject) the call number is far down in the record and is preceded and followed by a solid square block to flag it. The display format is wraparound, and there's no space between the entries. They wanted the format of the data to be identical in both the film and the fiche - partly for the convenience of the users, but also for reasons of economy since they wanted to do only one computer run from which both the fiche and film would be produced.

There are approximately 67 catalog stations throughout the campus with either film or fiche readers which display holdings for well over two thirds of the branch and departmental libraries. In the three major undergraduate and research libraries, microform readers are also located in the stacks. Formats not yet represented in the file are government publications, technical reports, maps, non-roman scripts, periodical holdings, and audiovisual materials.

In the main catalog area of the Robarts Library, users can find four film readers for each of the author and title files, and two film readers for the subject file. Four fiche readers are also available for the supplements. Shelflist film readers are nearby but are used infrequently. The files are in "strict" alphabetical order and except for the shelflist file, complete in a single enclosed machine.

In reviewing the program, the staff has concluded that the primary advantages are:

1. The COM catalog makes available at many locations in a decentralized system a union catalog that is relatively inexpensive and that meets the needs of the academic community.
2. because the microform readers are fairly simple to operate, it's not necessary for reference personnel to be near the machines constantly.
3. Users are better served with more and faster access points, location symbols

and a catalog that is far more straightforward than the hodgepodge card catalog.

They have also concluded, as you might expect, that there are a few disadvantages - namely:

1. In a comprehensive search of library holdings for a single title,a reader may be required to do as many as five lookups.
2. Delays in the production of supplements, which are all on fiche mean that errors remain in the COM catalog for a year until the files are completely updated. In fact, users seldom use the supplements.
3. Editing the card catalog, as editions and copies of works are placed in the COM catalog, has resulted in huge gaps in the card catalog for many widely read authors.
4. No cross-references provided.
5. Visibility remains poor on the microform readers due to small print, weak lighting and glare on the screen.
6. There aren't enough readers available.

It would seem from that recital that the disadvantages heavily outweigh the advantages, but it must be kept in mind that most of these problems are purely mechanical and pretty easily rectified. And in spite of them all, the users are pleased with the system, partly because of previous frustrations with the card catalog, and partly because they can now determine the location of sources in the numerous libraries. In fact, users in the Robarts Library will wait in line for a microform reader rather than use the card catalog located only ten feet away. Although the library is working ultimately towards an on-line catalog with COM backup, economic factors represent the major justification for the decision to currently stay with the COM catalog.

Very recently the Boston Public Library brought forth its COM catalog for the current holdings of the General Library (their retrospective holdings are found in their published book catalog which I referred to earlier). One of the major benefits for the patrons of the B.P.L. is that now each branch library has, in effect, a union

catalog (between the book catalog and the COM catalog) - this has long been desired by both staff and patrons but until now was an absolute impossibility. Although it's much too soon to be able to validly analyze this particular venture into automation, it is definitely one that we will all be watching very closely as it's really the first one in our immediate area that we can all view firsthand. Since it is so readily accessible I won't go into any details about it - but you do have some of their promotional literature in your packet and the B.P.L. has made a marvelous contribution to this program by allowing one of its readers to be brought here so that any of you desiring hands-on exposure to it can have it.

And now on to a bit about on-line catalogs. If COM catalogs are relatively new and experimental, on-line catalogs are even more so. An on-line catalog is a far less familiar device to library staff (although participation in OCLC is minimizing this aspect) and to the users than are the other physical forms. Therefore, training is required in both the operation of the equipment and the use of the query program. With this format, bibliographic information is stored in machine-readable form on magnetic discs, drums or tapes. Access to the catalog data may be by a typewriter terminal, a cathode ray terminal (often known simply as CRT) which is like a TV screen with a keyboard, or some other type of terminal interface. Besides the CRT display, hardcopy of the computer's responses may be produced either on-line or off-line; in the former process a printing device accompanies the CRT unit; in the latter process the printing unit prints during low use hours. At present, on-line catalogs cannot accommodate non-roman alphabets so that this information must be transliterated before it can be converted into machine-readable form. And - while computer programs can sort and file quickly and consistently, they cannot handle, without complex algorithms, the conversion of filing rules. Also - this system is much more prone to periodic breakdowns than are the other forms - at least at this stage in its development, although a well-designed system will provide for backup coverage so that operations can continue when breakdowns occur. A rather serious deterrent to the total effectiveness of present on-line catalog systems, but which isn't intrinsic to the on-line

process itself, is the absence of automatic authority control. At present, the only way to change or control authority terms, in the OCLC data base for example, is to individually maintain (or change) each occurrence of the term and to keep a manual authority file against which new authority terms can be checked and established. The chief disadvantage, at this time, of an on-line catalog is cost, although the strength of this argument is gradually diminishing because computer costs, particularly the cost of being on-line, are going down and the indications are that they will continue to decrease as methods and tools of storage and access become simpler. One of the desirable aspects of an on-line system (and there are more than just a few) is that it may be possible to consolidate into a single record all the catalogs and files of the library - for example, acquisitions records, circulation records, the author-title catalog, the subject catalog, branch library catalogs, and the shelflist. This catalog format is by far the most current of them all. Data can be input on-line and no supplements or interim records are required. The on-line system also allows for the immediate correction of any error, regardless of whether it's a single character or a whole record, thus eliminating the tremendous loss of time and the editorial expense involved in a repetitive proofreading.

A major advantage is that the sophisticated searching techniques which utilize boolean logic will be available to users. (Boolean logic is the term that information specialists apply to the logical system of linking terms in AND,OR, or NOT relationships.) For example, the reader needing information on asthma in children and its effect on learning behavior can search the data file by requesting materials on: 'children' AND 'asthma' AND 'learning'. The results of the search can be further refined by requesting: children AND asthma AND learning AND NOT materials written before 1972.

There is also no reason for an on-line catalog to be incomplete, because there is no reason to limit the number of access points to an item. For example, an on-line title catalog should be able to be accessed by AACR title, title page title,

original title, uniform title, supplied title, collective title, and any other special title - with this format a user can always be assured of finding an entry under title. If the user is searching by author, he should be assured that the on-line author catalog will include all personal and corporate names associated with an item, including cross references and authority information.

Although many libraries using OCLC as a cataloging tool report savings in some areas, no hard and fast data is available on the costs of maintaining an on-line public catalog. It is therefore virtually impossible to compare the cost of existing card catalogs with the cost of an on-line catalog. It is probably unrealistic to assume that the cost of the on-line catalog would represent a savings over the cost of the card catalog, either initially or on a continuing basis. Although initial costs should be expected to be high, it should be anticipated that an on-line system will greatly enhance searching capabilities in the catalog, make records available on a more current basis, improve access to the library's collections, diminish backlogs, and add new capabilities not now available in the card catalog format.

While some on-line costs will substitute for costs of the present catalogs, there really isn't sufficient data available to determine which of these costs can be substituted and which are additional. If a library desiring to go on-line were to participate in a cooperative venture, some of these costs of systems development and on-line storage would be shared.

Far more could be said on this topic of automated alternatives to the card catalog than I have been able to present to you this afternoon, but I do hope that I have been able to provide you with some basis for more in-depth discussions when you get back to your individual libraries.

And in conclusion I would like to re-state what I hope you have detected as a recurrent theme throughout my entire talk - that meeting the requirements of the user, whether student, faculty, library staff, or general public, is the single most important factor in the choice of catalog format.

The increasing sophistication of users of all levels coupled with an escalating output of books, journals and other material provides the basis for the search for increased sophistication of access to the library collection. However, there won't be any net benefits from the costs and disruptions of conversion to an automated catalog unless that automated catalog is measurably better than the present card catalog.

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The Old Catalog After Day 1

A Paper Presented at
Beyond Day 1: The Future of the Catalog

Boston Library Consortium
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You have heard the previous speakers talk about the background of the Library of Congress decision to close its catalog, the history of the card catalog, and the possibilities of automated catalogs.

After considering the various alternatives and possibilites with specific reference to your catalog and your collections, you have decided that 1980 is a good time to start over with AACR II and the Library of Congress. Your fresh start may be with an automated catalog, on-line or COM, or with a new card catalog. There are still more decisions to be made. What is to be done with the old catalog, the catalog built over generations of catalogers and generations of cataloging rules? Do you keep it? In what form? Cards, book, microtext? Do you just close it, or close and freeze it? Do you integrate it into your new catalog? How do you integrate it? At once? Gradually? What are the direct/indirect costs to the library user? What are the short term/long term benefits for your library, for your users? Many of the indirect costs are difficult or impossible to measure; some of the benefits also cannot be quantified. This paper presents some of the considerations entering your decision.

The first alternative is to keep the old catalog in some form. The form might be cards, book or microtext - I will discuss the form later. The decision to keep the old catalog is usually based partially on the size of the collection the catalog represents and the size of the catalog itself. You remember that one basis of L. C.'s closing was the sheer size of the catalog itself and the difficulty of filing into it. Another factor is the age of the catalog; age may be an important

factor in two ways: the physical age of the cards themselves: are they old and brittle, worn and illegible? The second concept of age affecting the catalog is the number of cataloging codes represented in the cataloging of the collection. Another factor in the decision to keep the old catalog is the availability of funds - and personnel - to implement the decision. For instance, you may decide not to publish your catalog because there are no funds; similarly, you may decide to keep the old catalog because integrating the old into the new costs more.

For the user the major effect of keeping the old catalog is to require him to consult two catalogs for all pre-1980 publications and for titles with an unknown publication date. The library staff, also, must consult two catalogs. The direct costs of keeping the old catalog depend upon the form. Keeping it in card form will probably involve only overhead and maintenance; the costs of publishing must be estimated for your catalog. More on this later. Indirect costs are probably not possible to calculate but would vary with the amount of searching in two catalogs required for subject bibliographies and retrospective acquisitions programs. Direct benefits to the user might be measured as time saved in using the catalog when only very current publications are wanted. Direct benefits for the library are probably cost savings, ranging from the cost of publishing, to the cost of conversion, to the cost of filing into a large unwieldy catalog.

The second part of your decision to keep your old catalog is what the form will be: keep it as a card catalog or publish it, book or microtext. Perhaps now is a good time to point out a distinction between the terms close and freeze, often used interchangeably. A closed catalog is a catalog to which no new titles or new cataloging is added; the possibility does exist of making changes in the catalog - to reflect changes in locations or number of copies or to remove withdrawn titles. A frozen catalog is a catalog in which no changes at all are made: no new cataloging, no cross references, no links will be added; no withdrawn

materials will be removed; locations and copies remain as indicated at the time of freezing. Publication of a catalog, in effect, freezes the catalog.

If you have decided to keep the old catalog, the most apparent and readily available form is the present card catalog. There are no publishing costs; there are no preparation costs. There are overhead costs for the space occupied by the catalog; there are also maintenance costs, e. g., replacing worn cards, replacing labels, compressing space and reducing the number of trays. It is possible to remove cards for lost or withdrawn materials and to maintain the currency of the catalog. The filing errors and the typing errors present in the catalog remain; without regular filing into the catalog such errors are less likely to be detected. Cards will become worn, illegible and mutilated and these also will be found with less frequency.

I have mentioned overhead costs for the space occupied by the catalog. There is another aspect of this space which might have more bearing on your decision than at first apparent. The catalog often occupies some of the most desirable space in the building. Does the growth of the library indicate that this space might better be used for other services or activities or for a different kind of catalog? A decision to publish might be made because the card catalog space is needed for something else.

There is another option available if you keep your old catalog in card form. I have not seen this possibility discussed to any extent, but it is worth considering. It is possible to separate old from new by date of publication rather than by date of cataloging. Searching for user and staff is simplified for items with known dates of publication; no additional complications occur if the date of publication is not known. AACR II already makes some distinctions based on date of publication. Distinguishing old from new by date of publication is possible only

if the old catalog is kept in card form; adding to a published catalog is not feasible. Catalogers might not find this alternative too acceptable for it means working with two codes. Even this objection is not valid, for catalogers are at present using a number of codes and combinations of codes. The next generation of catalogers could accept only AACR II for the old catalog, except for form of entry. If the catalog already encompasses a number of codes, one more code can be absorbed easily.

If the catalog in card form now seems as old fashioned as the Model T Ford and the space occupied by the catalog cases has already been claimed by both Reference and Reserve, you will probably decide to publish your old catalog. The multiple copies of the catalog possible with publication are a benefit offsetting the costs of publication. Grants for publication of a catalog are also a possibility. Another compelling reason to publish the catalog is to forestall the further deterioration of the card catalog through attrition of cards, mutilation of cards, etc.

Publication may be in book form or in microtext. Preparation for publishing is the same for either form since both usually involve filming as the first step. The present trend in publication is to publish microtext primarily because the costs of paper, printing, and binding have risen so greatly. Secondary reasons to favor microtext over book are the small amount of space occupied by the microtext and the ease of duplicating microtext at a later time if or when more copies are needed.

Whether the published catalog is printed or microtext, additional decisions will affect each equally. Perhaps in the past you have thought about changing from a dictionary to a divided catalog or vice-versa; perhaps now that you've

decided to publish you should consider the possibilities of a change. Making a change will involve additional man hours for preparation; however, if you've decided on a thorough, complete editing of the cards before filming, dividing or interfiling might not add that much time. The usual divided catalog is author/title and subject. A separate title catalog is a possibility to be considered. Some bibliographic tools - Books in Print - are now in three sections, author, title, subject. If you do decide on a separate title catalog, don't forget about all those title added entries which were not made, either because the titles were the same as subject headings - Sociology, Economic, Social sciences - or because the titles began with the overused phrases Principles of, Introduction to, History of, Principles of secondary education, History of the United States, Introduction to economics.

The final series of decisions to be made regarding a published catalog has to do with typing and filing errors in the catalog. Some cards will have to be replaced because they will not reproduce satisfactorily, the typing or printing is light, double or otherwise illegible. Some cards will be so soiled they will not reproduce and some cards will be mutilated. All these must be replaced before the filming begins. You might be able to estimate the number of such cards based on your knowledge of your catalog. Soiled cards are likely to be grouped in certain subject areas or certain authors. In our catalog, cards for such authors as Freud and Sartre would need to be replaced for at least half the titles. You could decide to correct all typing errors that have crept into the catalog in spite of all revision or you could decide to correct only those which affect the first or filing word.

Filing errors should be searched out and corrected; some estimates are as many as fifteen to twenty filing errors per tray. BPL has recently published its catalog of the general collection and has accumulated some information on

checking for filing errors. If your catalog is very old and the filing is based on the first set of ALA rules, you could also decide to revise all the filing according to the most recent rules. Again, this will require additional man hours, but your published catalog will reflect your additional care in preparing for publication.

Another option is the possibility of publishing as is, typos, filing errors and all. Preparation time is reduced and costs should be much lower for that reason. The resulting publication will be as good as your present catalog. Do take the time to sample your catalog, so you know more about its quality. Explanations of the process of publishing can warn the user to look beyond the obvious.

The problem of serials deserves special mention. If at the present time none of your serials are cataloged in your main public catalog and are cataloged in their own separate serials catalog, AACR II and serials can also be considered separately and no problem is created for the closed catalog. If your separate automated serials system is deemed an adequate index to your serials holdings, a decision to remove all serials from the main public catalog might solve problems, not create them.

However, the more usual case is that serials are presently cataloged in your public catalog and will remain there. Therefore, a separate decision for serials is a necessity. It is possible to decide that all serial publications should be included in the new catalog. Certainly all serials currently received should be included. It is possible to decide that all titles no longer received but related, as predecessor or "partial" predecessor, to titles currently received should be in the new catalog. What then should remain in the old catalog? It is logical to include in the old catalog all titles which ceased publication before 1980 and are not regarded as direct ancestors to another title still being

published. Any "dead" title in the Union list of serials, 2nd ed., is in this category. Even such recently deceased titles as Life and Look fit in this category. You can also decide to keep in the old catalog all titles for which your holdings stop or end before 1980, even though the title is still available. This decision does lead to the possibility of having the title in a published catalog for holdings of 1956-1978 and in the new catalog for a subscription beginning in 1982; the new catalog could, of coure, also list the volumes for 1956-1978.

The fact that the library has two catalogs may not be known to all of the library's users. Signs on the catalog will help and signs in the catalog, formally known as links, will help also. Links also serve as reminders for those who are aware of the existence of two catalogs but might forget about the second one in the search for an individual title.

Some of you might already be familiar with the form of these special reference cards if your catalog still has cards with the old subject headings NEGROES and NEGRO ARTISTS, etc., as well as cards with the headings BLACKS, AFRO-AMERICANS, and AFRO-AMERICAN ARTISTS, etc. Changes in subject headings will be made more frequently in L. C.'s automated catalog, so your decision now about links should not be made hastily.

Links in each of the catalogs to the other, i. e., links in both directions for all headings will provide the fullest information for the user; e. g., a card in the old catalog before the heading EUROPEAN WAR, 1914-1918 referring the user to books cataloged after 1980 under the heading WORLD WAR I in the new catalog and a similar card before the heading WORLD WAR I in the new catalog referring to EUROPEAN WAR, 1914-1918 in the old catalog are links in both directions. Such links could be made for subject headings, and for forms of names which have been changed: Clemens, Samuel in the old, Twain, Mark in the new. Such linking does

mean that the cataloger will have to check both catalogs whenever a heading is established. If you have published your old catalog, either in book form or in microtext, additional links for new headings in the new catalog cannot be added.

Linking only from the new to the old will provide incomplete information for the user; there will be no direct referral in the old catalog to the heading used in the new catalog. Whenever a new heading is added to the new catalog, the cataloger must still check the old catalog to make sure that the form of the heading is the same or to provide the link if a different form was used.

Providing links for only some kinds of headings might reduce the cost without seriously handicapping the user. Perhaps you have been able to change all subject headings as the Library of Congress has changed them. Your users might be more concerned with the change in the form of corporate headings than with a change in subject headings or with a change in the form of a personal name. Therefore, you might decide the links are necessary only for such headings as National Library of Medicine in the new catalog and U. S. National Library of Medicine in the old, or University of Massachusetts, Amherst in the new catalog and Massachusetts, University, in the old.

Provision of systematic links might not be cost beneficial for your library. There is a last option: provide no systematic links and make simple cross references as needed. It does take time to find those headings which need links and to check both catalogs. The first time the heading WORLD WAR I is used, you make a see reference from EUROPEAN WAR, 1914-1918. With the first use of the heading University of Massachusetts, Amherst, you make a see reference from Massachusetts, University.

The question of systematic links does not exist if the second alternative for the old catalog - integrate it - is selected. It is possible to convert all headings to the new forms as the catalog is integrated.

How the integration of the old catalog into the new occurs depends somewhat upon the form of the new catalog. If the new catalog is a card catalog, a major part of the integration is the interfiling of the two sets of cards. Judith has already explored for you the possibilities of the card catalog. My point of departure is the assumption that the new catalog is machine readable, whether it is on-line, COM, or even short-term card. The technology and/or software for a fully automated on-line public catalog may not yet exist, but technology does develop fast and with machine-readable records it is possible to take advantage of the technology as it develops. The creation of machine-readable records is a necessary step for a COM catalog or for an on-line catalog.

A major factor in the decision to integrate your old catalog, i. e., convert it to machine-readable records, is that the size of your collection and the size of your catalog does not really justify two catalogs. The form of your new catalog will influence the rate of conversion, conversion to machine-readable records. To move into "month 1" from "day 1" with a COM catalog of only those titles cataloged from "day 1" on might result in an extremely small COM catalog, whether it is on part of one leaf of microfiche or a small strip of microfilm. Or the result might be an extremely small on-line catalog, although I assume that none of us in 1980 will be able to afford all the hardware necessary for a completely on-line public catalog even if the technology develops.

If a COM catalog is the plan for 1980, "month 1, month 2, or month 3," then a "crash program" to convert as many records as possible to machine-readable form may also be part of the plan, with conversion to start as soon as the decision is made. Many of us already have substantial machine-readable records of varying degrees of usability available. A more gradual program may allow for technology to do some of the tasks - optical character recognition, machine conversion of printed cards by the same process that the bank reads your checking account numbers

on your checks, instead of keying all of each record is one example. A "crash program" does mean immediate expenditure of funds; exact costs must be estimated for your own library; costs given by others under different circumstances are not likely to be comparable.

A program of gradual conversion allows for the costs to be spread over a number of years. The total cost for a gradual conversion may be more because of staff changes and training of new staff; the total cost might also be substantially less if there is a technological breakthrough. The Library of Congress could conceivably provide for machine conversion of forms of headings.

Gradual conversion is more likely to take place in-house under most circumstances; for a "crash program" of conversion a contract arrangement might be made. There are agencies which will film a shelf list, and keyboard the information under contract. All expectations and requirements must be specified in detail. If a "crash program" takes place in-house, additional staff will be necessary; they must be provided with work space and they must be trained. These two possibilities should be explored thoroughly.

The most significant choice in integrating an old catalog into a new system is the amount of revision of old records undertaken. Will you change for forms of entry; will you revise your choice of entry; will you correct all subject headings? Changes in choice of entry probably mean handling the volume itself again; changes in form and in subject headings can be made without handling the volume about ninety-five per cent of the time. All of these things are important in spite of the many points of access available with machine-readable records; it is still important to be able to gather all of an author's works or all editions of a work regardless of the language in one place.

The hope of many catalogers is that machine-readable authority files for names and subject headings will soon be a built-in feature of the network on-line system. Such files would make possible machine checking and correction of

names and subjects, perhaps automatically but almost certainly upon request.

The process of conversion of the old records will be slower as long as all headings must be checked manually. If you are keying a group of cards with all author entries under Massachusetts, University, it is easy enough to remember to change them all to University of Massachusetts, Amherst, but it is not so easy to remember to make the same change for an added entry for a work cataloged under Randolph, Joseph. The ease with which future change can be accomplished will depend in large measure upon the kind of software developed by the Library of Congress and the computer networks.

Although it may seem possible to delay a decision waiting for technology - or for someone else to "do it" - delaying too long is a disservice to your users. You will not be providing them with the references they need, you may be sending them to various parts of the catalog for the same author - or you may even be using two forms of heading for the same author without your knowing it or letting your user know it. If your eventual decision is to start over and convert the old catalog you may be requiring your user to use two catalogs for a longer period than necessary. The basis for the major choices are known now; delaying may mean doing over more than seems likely now.